

REMARKS

In view of the foregoing amendments and the following remarks, allowance of this case is earnestly solicited.

The applicant first thanks Examiners Meeks and Burkhart for granting and conducting an interview in this application. At that interview modified forms of claims 1 and 28 were discussed in which it was proposed to include a limitation concerning the active or purposeful control of the AC-voltage supply relative to the breakdown voltage with that actively controlled relationship serving to thereby control the temperature at which the substrate would be treated and to reduce that temperature. Amendments to the claims now being made reflect those proposals and approval thereof is respectfully requested. Also, claims 6, 27, 45 and 46 have also been amended to correct spelling errors and claims 29-31, 36 and 39 have been amended to conform to the changes made to claim 28.

Section 112 Rejections

In response to the Examiner's rejection of claims 1 and 16 under 35 U.S.C. § 112, second paragraph, claims 1 and 16 have each been amended to correct the noted concerns and are believed to be in full compliance with § 112, second paragraph. Notice to that effect is respectfully requested.

The Obviousness Rejection

The examiner also rejected claims 1-11, 14-25, 28-34, 33-43, 47 and 48 under U.S.C. 103(a) as being unpatentable over deVries ('632). Without repeating the lengthy discussion, a number of issues were found with the Examiner's reasoning and the citation to various portions of deVries '632. Consequently, this rejection is also traversed.

First, the specification, starting on page 10, refers to the fact that low temperatures are being sought, as on page 11 that the temperature in the discharge space may be controlled to prevent damage to the thermoplastic polymer substrate can be prevented. (See, page 11, lines 7-26). Through out the specification it is stated that there is a relationship between the AC-voltage supply and the breakdown voltage, not the least is the discussion beginning at line 29 on page 12, in the table beginning at the bottom of page 14 and in the examples.

Consequently, the inventor recognized that temperatures in the discharge space can be controlled by maintaining a relationship between the amplitude of the AC-voltage being supplied and the breakdown voltage, and specifically that the amplitude of the applied AC-voltage is to be regulated in dependency on the breakdown voltage, the latter being an operational parameter that depends on the conditions in the discharge space. By actively controlling the applied AC-voltage at a level equal to at least the breakdown voltage the inventor found that the dissipation energy can be reduced and the temperature in the discharge space can thereby be controlled to thus prevent thermal damage to the thermoplastic polymer forming the substrate being treated.

Claims 1 and 28, the only two independent claims, have each been amended to specifically require that the amplitude of the AC-voltage be controlled to be dependent upon the breakdown voltage, which is itself determined by the conditions under which the plasma is generated, so that their claimed relationship can be maintained to thereby control the temperature applied to the substrate to prevent thermal damage.

As noted at the interview, while the Examiner had taken the position on page 3 of the action that deVries '632 disclosed that the temperature of nitrogen gas is lower than 100°C and referenced Col. 2, line 35, no such disclosure is to be found in line 35. Later, on page 4 of the

action, at the bottom of the page, the Examiner also stated that deVries '632 discloses that one can choose an amplitude of the AC-voltage where that amplitude is within a certain percentage of the breakdown voltage. There is no citation by the Examiner to where that disclosure can be found within deVries '632 and indeed a review of deVries '632 confirms that no such disclosure or teaching is being made.

It is submitted that deVries '632 does not mention temperature anywhere nor does it disclose any relationship between the amplitude of the AC-voltage and breakdown voltage of a supplied gas for any reason and nothing suggests such a relationship could be a basis for controlling temperatures within the discharge space to thereby prevent thermal damage to the substrate. Rather, as stated within the very first paragraph in deVries '632 the issue was how to improve adhesion of emulsions so that coating speeds could be increased. Thermal damage was not addressed nor was any relationship between AC-voltage amplitude and breakdown voltage of a gaseous substance.

Nowhere does the cited prior art suggest the effect of reducing the overall temperature in the discharge space by actively controlling the amplitude of the applied AC-voltage level by having it depend upon the breakdown voltage as claimed herein. Thus, unless hindsight is used, and it cannot be, there is no basis for asserting that deVries'632 renders as obvious the now claimed AC-voltage and breakdown voltage relationship as the basis for controlling temperature and thereby preventing thermal damage to the substrate being treated.

Prevention of thermal damage is addressed herein by a recognition that there is an important relationship between AC-voltage and breakdown voltage and it is submitted that the claims now define patentably over deVries'632 and notice thereof is respectfully requested.

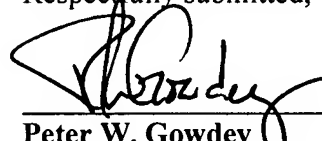
In view of the above, it is believed that all of the claims now presented are in allowable

form, and notice to that effect is respectfully requested. However, should the Examiner have any questions, or believe that some further discussion would prove helpful, the Examiner is urged to call the undersigned for such a discussion.

CUSTOMER NUMBER 42624

Respectfully submitted,

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